Rheumatology

Version 5.3

Corrected, Updated, Lighter

PLAB 1 Keys is for PLAB-1 and UKMLA-AKT (Based on the New MLA Content-Map)

With the Most Recent Recalls and the UK Guidelines

ATTENTION: This file will be updated online on our website frequently!

(example: Version 2.1 is more recent than Version 2, and so on)

List of Important Autoantibodies

Anti-dsDNA and Anti-smith	SLE (but the initial test is ANA – very sensitive)
Anti-histone	Drug-induced lupus (e.g. Hydralazine)
Anti-scl70	Systemic Sclerosis
Anti-centromere	Limited sclerosis/CREST syndrome

Anti-Jo1	Polymyositis
Anti-Ro, Anti-La	Sjogren's disease
Anti-mitochondrial	Primary biliary cirrhosis
Anti-smooth muscle	Autoimmune hepatitis
pANCA	Churg Strauss (Eosinophilic Granulomatosis with Polyangiitis) / UC / 1ry sclerosing cholangitis.
cANCA	Wegener's Granulomatosis (Granulomatosis with Polyangiitis)
Anti-tissue transglutaminase, Anti-gliadin, Anti-endomysial	Celiac Disease
ANA	RA, SLE (initial), and many other auto-immune diseases.

Key 1

◙ Initial (Screening) test of SLE → **Anti-nuclear antibody (ANA)** "More sensitive"

◙ Confirmatory → **Anti-dsDNA** "Specific"

Systemic Lupus Erythematosus (SLE)

◙ Features

Systemic lupus erythematosus (SLE) is a multisystem, autoimmune disorder. It typically presents in early adulthood and is more common in women and people of Afro-Caribbean origin.

General features	• Fatigue, fever, lymphadenopathy • **Mouth ulcers (large, multiple, painful)** • **Remitting and relapsing illness**
Skin	• **Malar** (butterfly) **rash**: spares nasolabial folds • discoid rash: scaly, erythematous, well demarcated rash in sun-exposed areas. Lesions may progress to become pigmented and hyperkeratotic before becoming atrophic • **Photosensitivity**

	• **Raynaud's** phenomenon (1/5th of the patients but often mild)
Musculo-skeletal	• Arthralgia • Non-erosive **arthritis**
Cardio-vascular	• **pericarditis**: the most common cardiac manifestation • myocarditis
Respiratory	• pleurisy • fibrosing alveolitis
Renal	• **Proteinuria** • **glomerulonephritis** (diffuse proliferative glomerulonephritis is the most common type)
Neuro-psychiatric	• **anxiety and depression** • psychosis • seizures

Investigations

◙ **The initial tests of SLE: ANA "Anti-nuclear antibody" (More sensitive)**

◙ **Confirmatory → Anti-dsDNA, ESR, Complement C3 and C4**

♦ **Remember, in SLE:**

+ve ANA, -ve ANCA, ↑ ESR

Proteinuria and hematuria might be found if there is renal involvement (GN).

Painful joints and morning stiffness can also be seen.

"it is not always about rash"

Anti-histone antibodies → **Drug-induced lupus**.

(e.g. due to hydralazine used for HF along with isosorbide dinitrate)

Others: Raised ESR, Normochromic Normocytic Anemia, low C3 and C4.

Monitoring

- **ESR**: during active disease, the CRP is characteristically normal. A raised CRP may indicate underlying infection.
- complement levels (**C3**, **C4**) are **low** during active disease
- (formation of complexes leads to consumption of complement)
- anti-dsDNA titres can be used for disease monitoring (but note not present in all patients)

Key 2

Chronic fatigue syndrome.

Diagnosed after **at least 4 months** of disabling fatigue affecting mental and physical function more than 50% of the time in the absence of other disease which may explain symptoms

Epidemiology

more common in **females**

past psychiatric history has **not** been shown to be a risk factor

◙ Fatigue is the central feature,

Other recognised features include:

√ **Sleep problems**, such as insomnia, hypersomnia, unrefreshing sleep, a disturbed sleep-wake cycle

√ **Muscle and/or joint pains**

√ **Headaches**

√ painful lymph nodes without enlargement

√ sore throat

√ cognitive dysfunction, such as difficulty thinking, inability to concentrate, impairment of short-term memory, and difficulties with word-finding

√general malaise or 'flu-like' symptoms

√ dizziness √ nausea palpitations

Investigation

NICE guidelines suggest carrying out a large number of screening blood tests to exclude other pathology e.g. FBC, U&E, LFT, glucose, TFT, ESR, CRP, calcium, CK, ferritin, coeliac screening and also urinalysis

Management

√ Cognitive behaviour therapy – very effective.

√ Graded exercise therapy.

Example,

26 YO female presents complaining of easy fatiguability even with little exertion, recurrent headaches, difficulty sleeping, difficulty concentrating, and body aches everywhere. These symptoms have been persistent for the last 5 months. She says that these symptoms began after a viral infection 5 months ago. FBC, KFT, LFT, TFT, Glucose, CRP, Urinalysis, all have been done and returned with normal ranges.

The likely Dx → **Chronic Fatigue Syndrome**.

Key 3

Myopathies

Features

√ Symmetrical muscle weakness (proximal > distal).

√ common problems are: rising from chair, combing hair, getting out of bath (Proximal muscle weakness).

√ Sensation and reflexes are normal, no fasciculation.

Causes

- Inflammatory: **Polymyositis**
- Inherited: Duchenne/Becker muscular dystrophy, myotonic dystrophy
- Endocrine: Cushing's, thyrotoxicosis
- Alcohol

Polymyositis

√ **Symmetrical** and **diffuse** muscle weakness (**proximal** > distal) involving the proximal muscles of neck, shoulders, trunk, hips, thighs, LL (affected earlier).

√ common problems are: **rising from a seated position**, **combing hair**, **getting out of bath**, **lifting objects, climbing stairs.**

√ (↑) **Creatine Kinase**.

√ **Anti-jo 1 autoantibodies**.

√ To Dx → Muscle biopsy.

Important differentiating point,

In **Polymyalgia Rheumatica (PMR)**,

• The Creatine Kinase is Normal, the ESR is >30 and CRP > 6.

(While in Polymyositis → ↑ CK).

• Polymyalgia Rheumatica also presents with aching and stiffness (while polymyositis has weakness).

• The sites of pain and stiffness on PMR are proximal muscles: Neck, shoulder, upper arm, pelvic girdle "difficulty to get out of bed, or to get up from a seated position, or to raise her arm above her head.

• 50% of patients with PMR have **Temporal arteritis** (>55 YO, Headache, Painful jaw especially on chewing).

• Initial tests → **ESR**

• Rx → **Prednisolone**.

So, in a patient with proximal muscle weakness "e.g. difficulty climbing stairs or getting up from a seated position + **↑ CK**

→ suspect **polymyositis**.

So, in a patient with proximal muscle weakness "e.g. difficulty climbing stairs or getting up from a seated position + **↑ CK**

Key 4

Sjogren's Syndrome

◘ Sjogren's syndrome is an autoimmune disorder affecting exocrine glands resulting in dry mucosal surfaces.

◘ It may be primary (PSS) or secondary to **SLE**, rheumatoid arthritis or other connective tissue disorders

◘ Sjogren's syndrome is much more common in females (ratio 9:1).

Features "important"

√ **Dry eyes** → keratoconjunctivitis sicca

"The patient may have **itchy eyes**, a **sandy sensation** under their eyes -due to low lacrimal production"

♦ Schirmer's test → ↓ tear production.

♦ Rose Bengal stain → may show Corneal ulcerations "2ry to dry eyes".

√ **Dry mouth**:

"They may complain of difficulty in swallowing food -due to low saliva"

√ **Recurrent Parotitis** → **Bilateral enlargement of Parotid glands**.

√ **Others**:

vaginal dryness, arthralgia, Raynaud's, myalgia, sensory polyneuropathy, renal tubular acidosis (usually subclinical)

Investigation

√ **Schirmer's test**: filter paper near conjunctival sac to measure tear formation → decreased tear production.

√ **Rose Bengal stain** → may show Corneal ulcerations "2ry to dry eyes".

√ **Rheumatoid factor** (RF) positive in nearly 100% of patients.

√ **Anti-Ro** (SSA) antibodies in 70%.

√ **anti-La** (SSB) antibodies in 30%.

Management

♦ **No Cure**.

♦ Give **artificial saliva** and **tears (e.g. Hypromellose drops)**.

Example,

A 45 YO ♀ presents complaining of a sandy feeling under her eyes and difficulty in swallowing for the last year. She also has bilateral parotid enlargement.

	The likely Dx → Sjogren's Syndrome. ♦ instead of mentioning "dry eyes", the stem says "sandy feeling under her eyes", which results from low tear production. ♦ Instead of saying "dry mouth", the stem says "difficulty in swallowing" which occurs 2ry to decreased saliva. ***Example,*** A 55 YO ♀ with Hx of SLE presents complaining of dry eyes and altered taste sensation. Her voice becomes hoarse when she speaks for long-time. The likely Dx → Sjogren's Syndrome. ✓ Please note that Sjogren syndrome can occur **primary** or **secondary** to connective tissue diseases such as **SLE** and RA. ✓ Here, the altered sense of taste and hoarseness are due to low saliva production which is seen along with dry eyes in Sjogren syndrome.
Key 5	**Systemic sclerosis (Scleroderma)**

Systemic sclerosis is a condition of unknown aetiology characterised by hardened, sclerotic skin and other connective tissues. It is four times more common in females

Raynaud's Phenomenon: "**√**"

Pale digits, hands – due to ischemia- → become cyanosed "**bluish**" when exposed to **cold** -due to deoxygenation → then become **red**.

♣ **The only licenced medication for Raynaud's phenomenon in the UK is**

→ **Nifedipine** (a calcium channel blocker). (**Imp** question).

"Note the amlodipine is also a calcium channel blocker, however; it is not licensed in the UK for Raynaud's phenomenon.

"Limited" Scleroderma [CREST Syndrome]

- Scleroderma affects **face** and **distal limbs** predominately "thick skin".
- **Raynaud's phenomenon** may be **first** sign
- **Slow onset** and **Slow progression**.
- associated with **anti-centromere antibodies**
- a subtype is **CREST syndrome**: **C**alcinosis, **R**aynaud's phenomenon, **E**sophogeal dysmotility, **S**clerodactyly, **T**elangiectasia
- Scl-70 antibodies (**-ve**)
- ANA is mostly +ve.

So, **Raynaud's phenomenon** develops firstly, then, **slow progression** (up to years) → them, **Other CREST** may be seen (e.g. small pink, red spots on lips, fingers. This is **Telangiectasia**)

"Diffuse" Scleroderma

- Scleroderma affects **trunk** and **proximal** limbs predominately
- **Rapid** onset and **Fast** progression.
- The most common cause of death is now **respiratory involvement**, which is seen in around 80%: interstitial lung disease (ILD) and pulmonary arterial hypertension (PAH)
- Other complications include **renal disease** and **hypertension**
- Poor prognosis.
- **Scl-70 antibodies** (**+ve**)
- ANA is mostly +ve.

Example (1),

A 44 YO ♀ has pallor of her hands followed by bluish discoloration after exposure to cold. This condition has been persistent for 3 years. She also has symmetrical peripheral arthropathy. Now, she develops small pink and red spots on her lips and fingertips.

	The likely Dx → **Limited Systemic Sclerosis (CREST Syndrome)** --- ***Example (2),*** A 46 YO ♀ has pallor of her hands followed by bluish discoloration after exposure to cold. She also has shortness of breath on walking and dysphagia. The likely Dx → **Systemic Sclerosis** Features of **CREST** (**Raynaud's**), (**Esophageal dysmotility**)
Key 6	**Temporal Arteritis [= Giant Cell Arteritis]**. • Temporal arteritis is large vessel vasculitis. • It is sometimes associated with polymyalgia rheumatica (PMR). • Histology shows changes which characteristically 'skips' certain sections of affected artery whilst damaging others. **Features** √ > 55 YO √ Usually rapid onset (e.g. < 1 month)

√ **Headache**

√ **Visual disturbances** (Blurry vision).

√ **Jaw claudication** (65%) "**Pain on Chewing**"

√ **Scalp Tenderness**.

√ Around 50% have features of **Polymyalgia Rheumatica** → aching, morning stiffness in proximal limb muscles (not weakness).

Investigations

• **Initial test** → **↑↑ ESR = erythrocyte sedimentation rate**. CRP may also be elevated

• To Dx "**confirmative**" → **temporal artery biopsy**: skip lesions may be present

[Note that creatine kinase and EMG normal]

Treatment "important √"

◘ **High-dose prednisolone** – there should be a dramatic response, if not, the diagnosis should be reconsidered.

◘ Added-on medication → **low dose Aspirin**

"Remember, in **Kawasaki**, which has a febrile **vasculitis** seen in children < 5 YO, we give High dose Aspirin to "avoid coronary artery aneurysm".

◘ Another possible Added-on medication → **Bisphosphonates**

Especially in **elderly**. As they receive high doses of prednisolone (**corticosteroids**), this would cause **osteopenia**, **osteoporosis**. Thus, a use of bisphosphonate may help prevent this.

◘ Urgent ophthalmology review. Patients with visual symptoms should be seen the same-day by an ophthalmologist. Visual damage is often irreversible (**Blindness is a feared complication in Temporal arteritis**).

To sum up

A patient presents with temporal arteritis "Giant cell arteritis"

(**>55 YO, usually unilateral headache and pain on chewing, sometimes tender scalp and blurry vision**)

→ the treatment is (**Prednisolone**). If asked about additional treatment, pick (**Aspirin**). If not give in the choices, pick (**Bisphosphonates**).

In **Polymyalgia Rheumatica (PMR)**,

• The Creatine Kinase is Normal, the ESR is >30 and CRP > 6.

(While in Polymyositis → ↑ CK).

• Polymyalgia Rheumatica also presents with aching and stiffness (while polymyositis has weakness).

• The sites of pain and stiffness on PMR are proximal muscles: Neck, shoulder, upper arm, pelvic girdle "difficulty to get out of bed, or to get up from a seated position, or to raise her arm above her head.

• 50% of patients with PMR have **Temporal arteritis** (>55 YO, Headache, Painful jaw especially on chewing).

- Initial tests → **ESR**
- Rx → **Prednisolone**

Example (1),

A 58 YO man presents with a 4-day Hx of right sided headache with blurry vision. He has pain around his jaw that worsens with chewing.

◙ The likely Dx → **Temporal arteritis = Giant cell arteritis GCA**.

◙ Initial Test → **Erythrocyte sedimentation rate (ESR): elevated**.

◙ The confirmative test → **Temporal artery biopsy**.

◙ The Rx → **Corticosteroids "High-dose prednisolone"**

◙ If the patient was already commenced on Prednisolone, what other medication can help in his case? → **Aspirin** "↓ stroke and visual loss"

Example (2),

55 YO ♀, feeling stiffness of neck, shoulders, hips in the morning over the past 2 months. Difficulty to get out of bed, and out of her chair. A few days ago, she developed a pain in her left jaw especially on chewing and a headache. Her left scalp is tender.

◙ The likely Dx → **Polymyalgia Rheumatica associated with Temporal arteritis**.

◙ The Rx → **Corticosteroids "High-dose prednisolone"**

	Important, "√" The most appropriate management is → **Prednisolone.** The most appropriate "**initial**" investigation → **ESR** The most appropriate (or definitive) investigation → **Temporal artery biopsy**. Temporal Arteritis is → **Arterial inflammation** (not infection nor aneurysm)
Key 7	**Important Points on Gout (Gouty Arthritis): ↑ Uric Acid** ◙ **The main features of gout** √ Pain: this is often very significant. √ Swelling. √ Erythema & warmth. √ Recurrent episodes/ attacks of similar joint inflammation may occur. √ Presents acutely "sudden": pain and swelling develop over a short duration. ◙ Around 70% of first presentations affect: → The first metatarsophalangeal joint (of the big toe). Other commonly affected joints include: ankle, wrist, knee. This means that gout can affect any site in hands and feet eg, DIP joint. ◙ **Important Exam Hints:** ○ An antihypertensive and diuretic medication "Thiazide Like Diuretic" such as bendroflumethiazide can cause Gout.

○ A diuretic used in Heart Failure → Loop diuretic (Furosemide) can cause Gout.

○ Also, Drinking Too Much Alcohol can cause Gout!

○ X-ray of the painful red swollen joint

→ Well-defined 'punched-out' erosions with sclerotic margins.

◙ **In short: Some Important Risk Factors of Gout**

→ Thiazide-like diuretics ▌Loop diuretics: Furosemide ▌Excessive alcohol intake.

◙ **Investigations of gout** → **Synovial fluid aspiration** and analysis. (important).

Important → If there is no fever, send joint aspirate for "microscopy" not for culture.

"Caution! Do not pick (Serum Uric Acid) as it is usually normal or low in the acute stage! It can be measured 4-6 weeks after the acute stage has been passed".

So, in acute attack, Serum uric acid is not the answer as an investigation!

◙ **Management of gout:**

√ If the patient is presenting with **acute attack** "important":

→ **First line** → NSAIDs (eg, Ibuprofen, Naproxen) ▌2nd → Colchicine.

√ For **long-term** management of gout (after 2 weeks of acute attack)

→ Allopurinol "with NSAIDs and Colchicine coverage".

◙ **Radiological features of gout:**

- Joint effusion is (early sign).
- Well-defined 'punched-out' erosions with sclerotic margins in a juxta-articular distribution, often with overhanging edges
- Relative preservation of joint space until late disease
- Eccentric erosions
- No periarticular osteopenia (in contrast to rheumatoid arthritis)
- Soft tissue tophi may be seen

◙ **Caution**:

Gout does not only affect the big toe; it can also affect Knees, interphalangeal joints and other joints. Whenever you see "bendroflumethiazide" or another RF as heavy alcohol along with **painful**, **tender**, **swollen** joint:

Think → Gout → Synovial fluid aspiration.

→ NSAIDs or Colchicine for acute attack.

Also, the stem may not mention any of the RFs.

Key 8

Septic Arthritis

Important Topic! Every single detail can be a question.

Please, remember that Rheumatoid arthritis is an important risk factor. It is usually given in a stem as a hint with other features of septic arthritis.

Monoarthritis = Single joint involvement (commonly **Knee**)

Fever/ **Pain**/ **Swelling**/ **Limited movement**/ **Hotness**

+ A **Risk factor** (e.g. **DM**, **Steroid**, **HIV**, **Rheumatoid Arthritis**) "important √"

Think of → **Septic Arthritis**

Commonly affect **Knee**, but can affect others especially **Shoulder**

♦ The commonest causative organism → **Staphylococcus Aureus**.

♦ A common organism in young SEXUALLY active → N. Gonorrhea.

♦ Dx

√ ***Aspiration of Synovial Fluid for culture and sensitivity*** √

√ ***Blood Culture***.

♦ Management

√ **Flucloxacillin** (for 4-6 weeks) "first-line" "like cellulitis"

should be started empirically before the synovial culture results.

√ If penicillin allergic → **Clindamycin**.

√ If the causative organism is N. Gonorrhea nor Staph → **Cefotaxime** or **Ceftriaxone**.

√ If still not responding → **Repeated percutaneous aspiration**.

"IV antibiotics for 1 week until blood cultures become -ve and swelling resolves

Then, Oral antibiotics for 4 weeks"

◙ **Note, do not forget (DM, RA) as risk factors for Septic Arthritis. "Hints"**

Septic arthritis is different from Reactive arthritis.

Reactive arthritis: Seronegative Spondyloarthritis

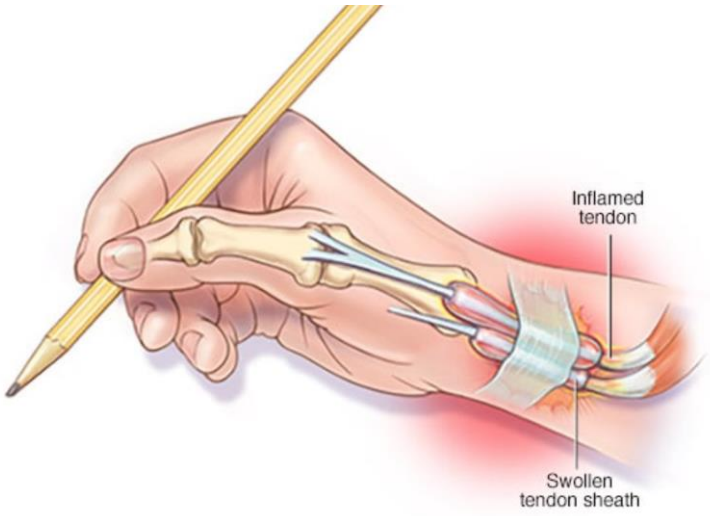
(**Migratory Oligoarthritis of lower limbs** + **Back pain** + **Extraarticular features**)

• Typically, there is **no fever**.

	• Typically, seen in **young adults**. • Typically follows **Urogenital infection "STI"** or **GI infection "dysenteric illness"**. • **Asymmetric**, **Migratory Oligoarthritis** of **LL** (Knees and Ankles). • **Extraarticular features: (Reiter's Triad)** √ ***Cannot see*** → *Conjunctivitis*, Uveitis. √ ***Cannot pee*** → *Urethritis*. √ ***Cannot climb a tree*** → *Arthritis*. (pain and swelling of small joints) + ***Skin manifestations*** → Rash (Maculopapular) *circinate balanitis* (painless vesicles on the coronal margin of the prepuce), *keratoderma blenorrhagica* (waxy yellow/brown papules on palms and soles) *Erythema nodosum* (Tender, red nodules over shins). **Management** ♦ Symptomatic: analgesia, NSAIDS, intra-articular steroids ♦ Sulfasalazine and methotrexate are sometimes used for persistent disease ♦ Symptoms rarely last more than 12 months
Key 9	**Important DDx** ◘ **De Quervain's disease**: (= **washerwoman sprain** = **mammy thumb = Gamer thumb**): Pain under root of **thumb (Base of thumb)** (**tenosynovitis**).

The pain is elicited on **gripping** things and on **ulnar deviation**.

It is common in games that requires wrist gripping (eg, badminton) and is also common after pregnancy as repeated carrying a baby can cause repetitive stress injury and inflammation of extensor pollicis brevis and abductor pollicis longus.



√ In De Quervain's tenosynovitis:

Eickhoff's test → The **radial styloid process** becomes more painful when doing **ulnar deviation**.

◘ Tennis elbow = lateral epicondylitis → affected wrist extension. Mainly due to overuse e.g., in tennis players.

◘ Golfer's Elbow = Medial epicondylitis: all flexors to fingers and pronator are affected. Seen in baseball players, construction injury, plumber injury.

Dupuytren's contracture

- a condition in which there is a fixed forward curvature of one or more fingers, caused by the development of a **fibrous connection** between the finger tendons and the skin of the palm.
- Dupuytren's contracture has a prevalence of about 5%.
- It is more common in older male patients.
- 60-70% have a **positive family history**.
- **Specific causes include**→ Manual labour ▌phenytoin treatment ▌alcoholic liver disease ▌trauma to the hand ▌DM ▌Smoking
- **Mechanism**

  → **Formation of thickened fibrous tissue within the palmar fascia**.
- **Rx** → **Fasciotomy**

Trigger Finger = (Stenosing Tenosynovitis)

◙ More common in the thumb, middle, or ring finger.

◙ **Stiffness of a finger**, and **snapping** (**click**) sound **when extending a flexed digit**.

◙ A **nodule** may be felt at the base of the affected finger.

	Example 1, A female has recently given birth presents with pain in her **thumb base**. The pain is particularly felt when she picks up her baby and while changing the diapers. → **De Quervain's Tenosynovitis** ***Example 2***, A female who is an avid badminton player presents to the GP with a gradual onset of pain of her wrist especially when gripping and raising objects. The radial styloid process is tender and becomes more painful on ulnar deviation. What is the most likely diagnosis? → **De Quervain's Tenosynovitis**		
Key 10	**Churg Strauss (Eosinophilic Granulomatosis with Polyangiitis)** Both names are important to know	**Asthma, Nasal polyps, Allergic rhinitis, Eosinophilia** **+ Other organs** **e.g.** purpura, Glomerulonephritis, HF, **Skin nodules**.	**p-ANCA [√]** Eosinophilia ↑ ESR, CRP, IgE **CT → Ground-glass attenuation**
	Wegener's Granulomatosis (Granulomatosis with Polyangiitis)	Upper Respiratory problems (**Sinusitis**/ Nasal septum perforation/ Epistaxis / nasal crusting)	**c-ANCA**

	Both names are important to know	+ Hematuria / Hemoptysis Bleeding: nose, lung, kidney	

If you memorise this comparison, you shall be able to solve any question related to it.

Key 11

Rheumatoid Arthritis

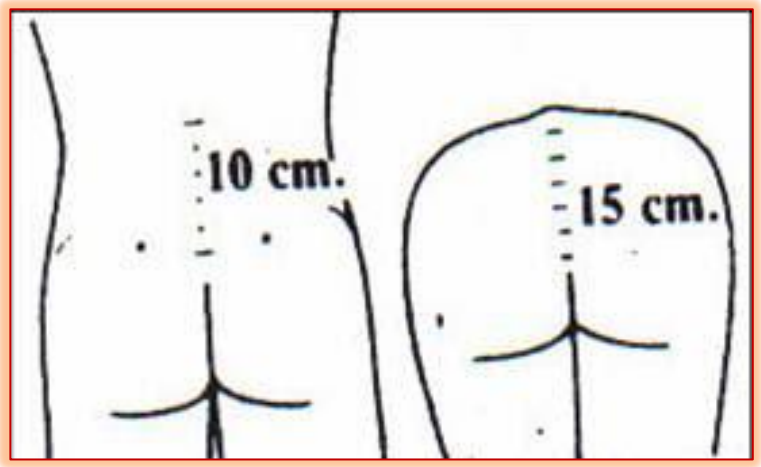
Typical features

- Swollen, painful joints in hands and feet.
- Stiffness worse in the morning.
- Gradually gets worse with larger joints becoming involved.
- Presentation usually insidiously develops over a few months.
- Positive 'squeeze test' – discomfort on squeezing across the metacarpal or metatarsal joints.

Management is beyond PLAB scope. However, remember these:

√ NICE updated their rheumatoid arthritis guidelines. They now recommend **DMARD monotherapy (e.g. methotrexate)** ± a short-course of bridging prednisolone. In the past dual DMARD therapy was advocated as the initial step.

	√ Please, know that **NSAIDs** (e.g. **ibuprofen**) can be used to manage severe joints pain in RA.
Key 12	**Young man** **Low back pain +** **Morning Stiffness +** **Uveitis "painful eye" ±** **Tenderness of Sacro-iliac joint "X-ray of this joint is the most helpful"** **Dx** → **Ankylosing Spondylitis** "a type of **Seronegative Spondyloarthropathy**" **Rx** → **NSAIDs** (first line) ▌**Anti-TNF therapy** (second line) **To Diagnose** → **X-ray of Sacroiliac joint**. "**important**" √ **Other Points:** √ Back pain is worse in the morning and improves on exercise. √ Ankylosing Spondylitis has a strong association with **HLA-B27** but we **CANNOT** use it for diagnosis as it is Positive in 10% of Normal people.

	√ ± Anemia, ↑ WBCs, ↑ ESR. √ **A**nkylosing Spondylitis associations → **A**nterior uveitis, **A**ortic regurgitation. √ **Schober's test** – a line is drawn 10 cm above and 5 cm below the back dimples (dimples of Venus). The distance between the two lines should increase by more than 5 cm when the patient bends as far forward as possible. 
Key 13	√ ***Cannot see*** → *Conjunctivitis*, Uveitis. √ ***Cannot pee*** → *Urethritis*. √ ***Cannot climb a tree*** → *Arthritis*. (pain and swelling of small joints) + ***Skin manifestations*** → Rash (Maculopapular)

	→ **Reactive arthritis**
Key 14	Remember, in acute gout: → First line → **NSAIDs (e.g. Ibuprofen, Naproxen)** ▌2nd → **Colchicine**. So, if the options have both (Naproxen and Colchicine), pick **Naproxen**, which is an NSAID.
Key 15	Remember: **Erythema nodosum**, (Tender, red nodules over shins). **Bilateral hilar lymphadenopathy**, (the most common finding on Chest X ray) **Polyarthralgia** **Hypercalcaemia**, **Fever**. **Please, whenever you see 2 of these features, consider "Sarcoidosis".** **Syndromes associated with sarcoidosis** **Lofgren's syndrome** is an acute form of the disease characterised by bilateral hilar lymphadenopathy (BHL), erythema nodosum, fever and polyarthralgia. It usually carries an excellent prognosis.

	Mikulicz syndrome: there is associated enlargement of the parotid and lacrimal glands → Dry mouth, face swelling. Due to sarcoidosis, tuberculosis or lymphoma **Heerfordt's syndrome** (uveoparotid fever) there is parotid enlargement, fever and uveitis secondary to sarcoidosis ***Example,*** A 30 YO ♀ presents complaining of painless bilateral swelling of face and mild fever. She also has dry mouth. On chest X-ray → bilateral perihilar lymphadenopathy. The likely Dx → **Sarcoidosis**. (Likely: **Mikulicz syndrome**)
Key 16	**A hypertensive patient presents with big toe severe pain, swelling and erythema.** Rx → **Naproxen**. He is likely on bendroflumethiazide for his HTN. Thiazide like diuretics and loop diuretics can cause **Gout**.

	√ If the patient is presenting with **acute attack** "important": → First line → **NSAIDs (e.g. Ibuprofen, Naproxen)** ▌2nd → **Colchicine**. √ For long-term (after 2 weeks of acute attack) → **Allopurinol** "with NSAIDs and Colchicine coverage"
Key 17	**A 60 YO man presents with unilateral headache and pain on chewing, sometimes tender scalp and blurry vision.** ◙ The most appropriate investigation → **Temporal artery biopsy**. ◙ The treatment is **steroids** (Prednisolone). √ If asked about additional treatment, pick (Aspirin). Likely **Giant Cell Arteritis (Temporal Arteritis).**
Key 18	**78 yr old lady with unilateral headache and pain on chewing (i.e. giant cell arteritis) on prednisolone 60mg and omeprazole. ESR 70. What additional medication to add?**

A) **bisphosphonates**

B) calcitonin

C) calcium supplement

D) HRT

E) Parathyroid hormone

GCA = Temporal Arteritis

Investigations

• **Initial test** → ↑↑ **ESR**. CRP may also be elevated

• To Dx "**confirmative**" → **temporal artery biopsy**: skip lesions may be present

[Note that creatine kinase and EMG normal]

Treatment "important √"

◘ **High-dose prednisolone** – there should be a dramatic response, if not, the diagnosis should be reconsidered.

◘ Added-on medication → **low dose Aspirin**

"Remember, in **Kawasaki**, which has a febrile **vasculitis** seen in children < 5 YO, we give High dose Aspirin to "avoid coronary artery aneurysm".

	◘ Another possible Added-on medication → **Bisphosphonates** Especially in **elderly**. As they receive high doses of prednisolone (**corticosteroids**), this would cause **osteopenia**, **osteoporosis**. Thus, a use of bisphosphonate may help prevent this. ◘ Urgent ophthalmology review. Patients with visual symptoms should be seen the same-day by an ophthalmologist. Visual damage is often irreversible (**Blindness is a feared complication in Temporal arteritis**). **To sum up** A patient presents with temporal arteritis "Giant cell arteritis" (**>55 YO, usually unilateral headache and pain on chewing, sometimes tender scalp and blurry vision**) → the treatment is (**Prednisolone**). If asked about additional treatment, pick (**Aspirin**). If not give in the choices, pick (**Bisphosphonates**).
Key 19	24 YO boy was able to walk with support when he was younger. However, he is unable to walk now. What is the next step? → Request **CK** He was able to walk earlier, thus, not a developmental milestone issue. We suspect polymyositis → order **Creatine Kinase**.

Key 20

A 72yr old woman presents with hip and shoulder pain. Pain in the wrist. Synovial joint thickening. No muscle pains. Raised ESR: 80, normal CK. What is the most definitive treatment?

A. sulfasalazine

B. Ibuprofen

C. **prednisolone**

D. hydroxychloroquine.

In **Polymyalgia Rheumatica (PMR)**,

• The Creatine Kinase is Normal, the ESR is >30 and CRP > 6.

(While in Polymyositis → ↑ CK).

• Polymyalgia Rheumatica also presents with aching and stiffness (while polymyositis has weakness).

• The sites of pain and stiffness on PMR are proximal muscles: Neck, shoulder, upper arm, pelvic girdle "difficulty to get out of bed, or to get up from a seated position, or to raise her arm above her head.

• 50% of patients with PMR have **Temporal arteritis** (>55 YO, Headache, Painful jaw especially on chewing).

• Initial tests → **ESR**

• Rx → **Prednisolone**.

Key 21

Woman with pain and stiffness of the joints of her hand. Has rash that crosses her nose and cheeks. Medical history significant for mouth ulcers. The investigation of choice?

A. Anti-cardiolipin

B. Anti CCP

C. **Anti-ds DNA**

D. ANCA

E. Anti-smooth muscle

◙ The given features are suggestive of Systemic Lupus Erythematosus (**SLE**).

◙ Initial (Screening) test of SLE → **Anti-nuclear antibody (ANA)** "More sensitive"

◙ Confirmatory → **Anti-dsDNA** "Specific"

♦ **Remember, in SLE:**

+ve ANA, -ve ANCA, ↑ ESR

Proteinuria and hematuria might be found if there is renal involvement (GN).

	Painful joints, morning stiffness and mouth ulcers can also be seen. **"it is not always about rash"**
Key 22	**Patient with dry eyes. Schirmer's test shows 8mm (N > 15). (+) ANA. Management?** A: **Hypromellose** (an artificial tear) B. Timolol c. acetazolamide d. antibiotics e. 38aryrose oil ◙ Itchy, dry, mildly painful eyes + Reduced lacrimation (Schirmer's test < 10 mm) → **Keratoconjunctivitis Sicca** → Use **Artificial tears** e.g. **Hypromellose drops**, **NaCl**, **Sodium hyaluronate**. ***Any of which would be a valid answer!***

Sjogren's syndrome

◘ Sjogren's syndrome is an autoimmune disorder affecting exocrine glands resulting in dry mucosal surfaces.

◘ It may be primary (PSS) or secondary to **SLE**, rheumatoid arthritis or other connective tissue disorders

◘ Sjogren's syndrome is much more common in females (ratio 9:1).

Features "important"

√ **Dry eyes** → keratoconjunctivitis sicca

"The patient may have **itchy eyes**, a **sandy sensation** under their eyes -due to low lacrimal production"

♦ Schirmer's test → ↓ tear production.

♦ Rose Bengal stain → may show Corneal ulcerations "2ry to dry eyes".

√ **Dry mouth**:

"They may complain of difficulty in swallowing food -due to low saliva"

√ **Recurrent Parotitis** → **Bilateral enlargement of Parotid glands**.

√ **Others**:

	vaginal dryness, arthralgia, Raynaud's, myalgia, sensory polyneuropathy, renal tubular acidosis (usually subclinical) **Investigation** √ **Schirmer's test**: filter paper near conjunctival sac to measure tear formation → decreased tear production. √ **Rose Bengal stain** → may show Corneal ulcerations "2ry to dry eyes". √ **Rheumatoid factor** (RF) positive in nearly 100% of patients. √ **Anti-Ro** (SSA) antibodies in 70%. √ **anti-La** (SSB) antibodies in 30%. **Management** ♦ **No Cure**. ♦ Give **artificial saliva** and **tears (e.g. Hypromellose drops)**.
Key 23	In **Rheumatoid Arthritis**, Glucocorticoids (e.g., Prednisolone) are very effective to rapidly decrease the inflammation.
Key 24	**Raynaud's Phenomenon**: "**√**"

Pale digits, hands – due to ischemia- → become cyanosed "**bluish**" when exposed to **cold** -due to deoxygenation → then become **red**.

♣ **The only licenced medication for Raynaud's phenomenon in the UK is**

→ **Nifedipine** (a calcium channel blocker). (**Imp** PLAB 1 question).

"note the amlodipine is also a calcium channel blocker, however; it is not licensed in the UK for Raynaud's phenomenon.

Raynaud's Phenomenon in Short:

Raynaud's phenomenon is a condition characterized by episodic vasospasm and ischemia of the small arteries and arterioles of the extremities, primarily affecting the fingers and toes, but it can also involve the ears, nose, and lips. **Triggered** by cold exposure or emotional stress, it leads to color changes (white ie, pale to blue to red), numbness, pain, and tingling in the affected areas**.**

Types:

1. **Primary Raynaud's**:
   - No associated medical condition.
   - Common in young women, due to overactive sympathetic response.
2. **Secondary Raynaud's**:
   - Linked to diseases like systemic sclerosis, lupus, rheumatoid arthritis.
   - More severe, potential for ulcers or gangrene.

- Causes include connective tissue diseases, occupational factors, medications, and other conditions.

Pathophysiology:

- **Vasoconstriction**: Excessive narrowing of blood vessels particularly the small.
- **Phases**:
  1. **White -Pale- (Ischemia)**: Reduced blood flow.
  2. **Blue (Cyanosis)**: Lack of oxygen.
  3. **Red (Reperfusion)**: Return of blood flow, causing pain or tingling.

Management:

- **Lifestyle**:
  - Keep warm, avoid cold, manage stress.
  - Stop smoking.
- **Medications**:
  - First-line: Calcium channel blockers (e.g., nifedipine).
  - Alternatives: Phosphodiesterase inhibitors, ACE inhibitors (2nd line).
- **Treat Underlying Conditions**: Manage associated diseases.
- **Severe Cases**: Specialist referral for advanced therapies like intravenous prostanoids or sympathectomy.

Key 25

Rheumatic fever

• Rheumatic fever develops following an immunological reaction to a recent (2-6 weeks ago) Streptococcus pyogenes infection.

• **Example**:
A history of **sore throat** (strept) 2 weeks ago → then developed **arthritis**, **rash**, pansystolic murmur (**cardiac**).

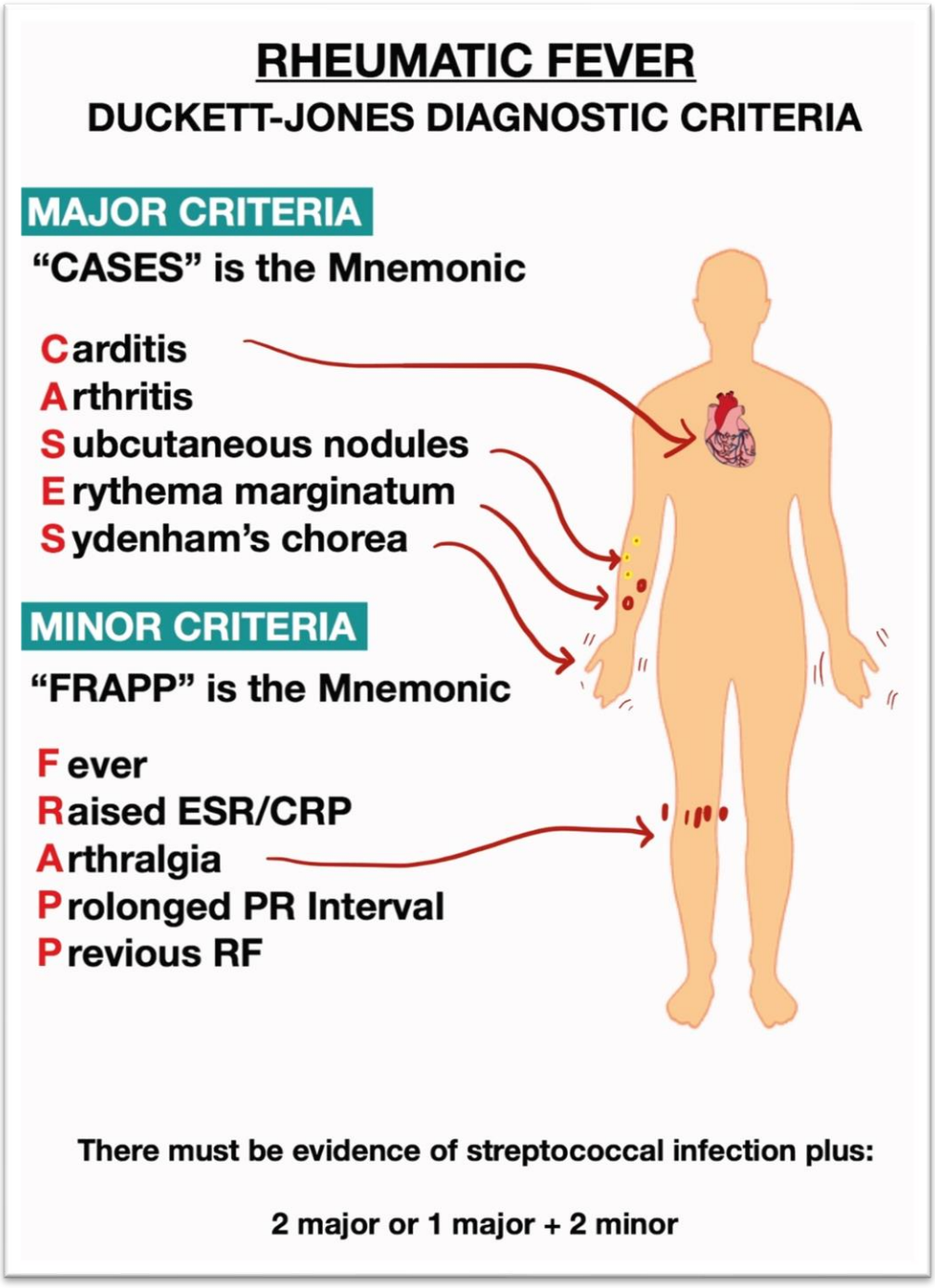
◙ Diagnostic criteria

Diagnosis is based on evidence of recent streptococcal infection accompanied by:

- 2 major criteria, or:
- 1 major with 2 minor criteria

Evidence of recent streptococcal infection

- raised or rising streptococci antibodies,
- positive throat swab
- positive rapid group A streptococcal antigen test



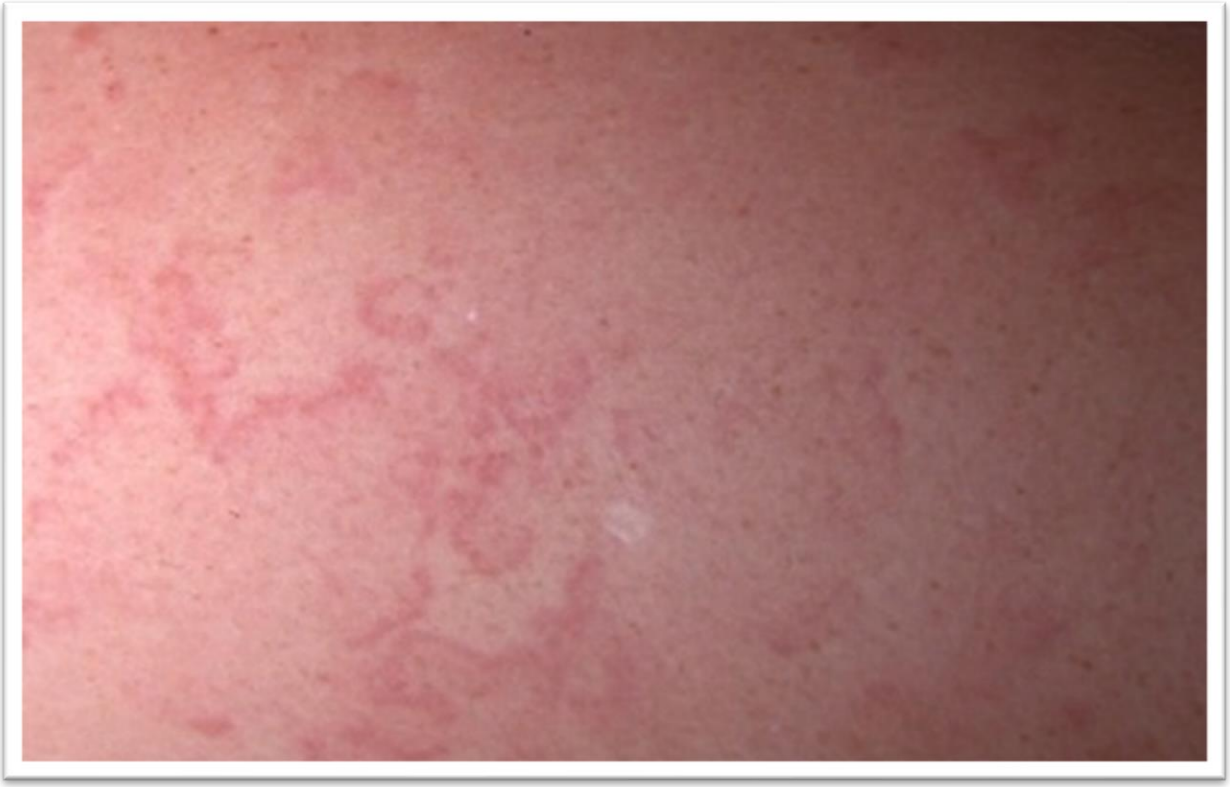
◆ Major criteria

- Erythema marginatum (pink annular rash on trunk and limbs).
- Sydenham's chorea: this is often a late feature

- Polyarthritis (in teens with rheumatic fever, the large joints of the lower limbs e.g., **knees** are the first to be affected. Then, arthritis would normally migrate to other joints such as ankles, elbows, wrists).
- carditis and valvulitis (e.g., pancarditis) (Mitral valve regurgitation or stenosis commonly develop especially mitral regurgitation → pansystolic murmur).
- subcutaneous nodules

◆ Minor criteria

- raised **ESR** or **CRP**
- fever
- arthralgia (not if arthritis a major criteria)
- prolonged PR interval



Erythema marginatum is seen in around 10% of children with rheumatic fever. It is rare in adults

◙ Labs (imp.):

√ The most likely laboratory value to be abnormal is → ESR.

√ The most "specific" or the most appropriate test → ASO antibodies.

◙ Management

Outline of management

- antibiotics: oral penicillin V
- anti-inflammatories: NSAIDs are first-line
- treatment of any complications that develop e.g., heart failure

◙ *Example:*

A 14 years old boy presented with painful joints and rash. The pain was started on the knees then it is now affecting ankles and elbows. The rash are pink annular on the trunk and upper and lower limbs. He has a history of sore throat two weeks ago. A pansystolic murmur is heard over the apex. Ibuprofen (a NSAID) can help with the pain.

	√ The likely Dx → Rheumatic fever. √ The most likely lab value to be abnormal is → ESR. √ The most appropriate/ specific lab test is → Antistreptolysin O (ASO) antibodies.

Key 26	**A 54 YO man on bendroflumethiazide for his hypertension presents with a painful, red and swollen left index finger. It happened spontaneously without a Hx of trauma. There is no fever. The distal interphalangeal joint is red, swollen and warm. He had a milder but milder episode 5 years ago and it was resolved on its own.** The likely Dx → **Gout**. Remember, **bendroflumethiazide** (a thiazide-like diuretic) can cause **hyperuricemia** → Gout. Caution, in **acute attack** like in this stem, serum uric acid can be normal or low. Thus, it is not the appropriate investigation, but **synovial fluid aspiration and analysis**.

Caution, in **acute stage** like in this stem, **NSAIDs** is first-line, **Colchicine** is second line. After 2 weeks of the acute stage → Allopurinol (along with NSAIDs or Colchicine coverage). (Review key 7).

Loop diuretic	**Thiazide-like diuretics**	**Potassium-sparing diuretics**
e.g. Furosemide bumetanide	e.g. Bendroflumethiazide Indapamide	e.g. Spironolactone eplerenone
Hyponatremia	Hyponatremia	Hyponatremia
Hypokalemia	Hypokalemia	Hype**R**kalemia
Gout (hyperuricemia)	Gout (hyperuricemia)	Gynecomastia
	Postural Hypotension	
	Hyperglycemia (impaired glucose tolerance)	

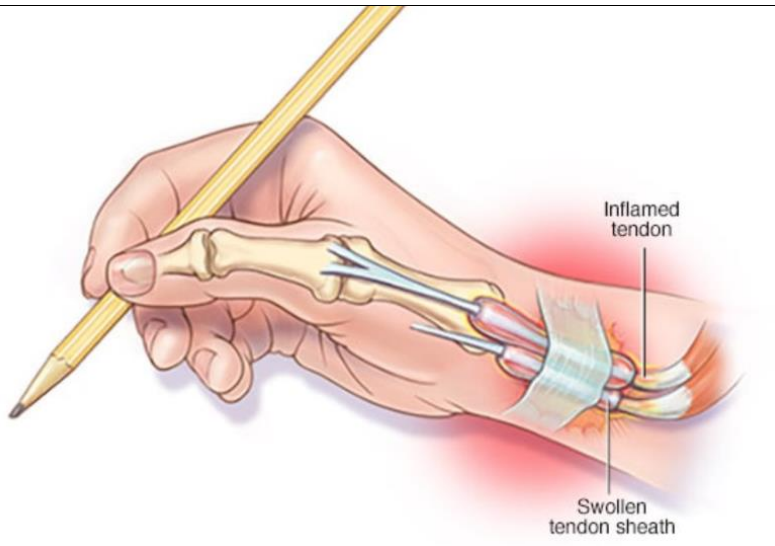
Key 27

A 75 YO man on several medications for systolic heart failure, ankle edema, Raynaud's syndrome presents with severe pain in his left knee that started 3 days ago. His left knee is swollen, tender and red. He is on losartan, bisoprolol, nifedipine, digoxin and indapamide.

The likely Dx → **Acute Gout**.

The drug that likely caused his condition is → **Indapamide**. (Thiazide diuretic).

	Remember, **Indapamide** and **bendroflumethiazide are** (thiazide-like diuretics) and they can cause **hyperuricemia → Gout**.
Key 28	**Temporal Arteritis "Giant cell arteritis"** • **Features:** >55 YO ▌unilateral headache ▌pain on chewing ▌sometimes tender scalp ▌blurry vision. • The **diagnostic modality** is → Temporal artery biopsy. • **The treatment** is → High dose of oral steroids (oral prednisolone). If asked about additional treatment, pick → (Aspirin). If Aspirin is not given in the options, pick → (Bisphosphonates).
Key 29	◘ **De Quervain's disease**: (= **washerwoman sprain** = **mammy thumb = Gamer thumb**): Pain under root of **thumb (Base of thumb)** (**tenosynovitis**). The pain is elicited on **gripping** things and on **ulnar deviation**. It is common in games that requires wrist gripping (eg, badminton) and is also common after pregnancy as repeated carrying a baby can cause repetitive stress injury and inflammation of extensor pollicis brevis and abductor pollicis longus.



√ In De Quervain's tenosynovitis:

Eickhoff's test → The **radial styloid process** becomes more painful when doing **ulnar deviation**.

Example 1, A female has recently given birth presents with pain in her **thumb base**. The pain is particularly felt when she picks up her baby and while changing the diapers.

→ **De Quervain's Tenosynovitis**

Example 2, A female who is an avid badminton player presents to the GP with a gradual onset of pain of her wrist especially when gripping and raising objects. The radial styloid process is tender and becomes more painful on ulnar deviation. What is the most likely diagnosis?

→ **De Quervain's Tenosynovitis**

Key 30

Polyarteritis Nodosa (PAN)

• PAN is a rare systemic vasculitis with necrotizing inflammation of the medium-sized arteries that may be seen in childhood.

• It can present with:

Unexplained fever, maculopapular rash, subcutaneous nodules, hypertension and proteinuria.

• Others → Headache, myalgia, vague abdominal pain.

• The symptoms are so vague. They can be seen in other diseases. For example, **Henoch-Schonlein Purpura** (**HSP**):

HSP → **PAAN**: **P**urpura, **A**rthralgia, **A**bdominal pain, **N**ephropathy "not always" (Hematuria, Proteinuria).

So, it is rarely asked in exams and it should be picked by exclusion.

• Treatment mainly depends on **corticosteroids**. Others: cyclophosphamide and azathioprine.

Key 31

Fibromyalgia

◙ Fibromyalgia is a syndrome characterised by **widespread pain** throughout the body **with tender points** at specific anatomical sites.

The cause of fibromyalgia is unknown.

◙ Epidemiology:

√ Women are around 5 times more likely to be affected than men.

√ Typically presents between 30-50 years old.

◙ Features of Fibromyalgia:

√ Chronic pain: at multiple sites, sometimes (pain all over) for > 3 months.

√ Fatigue and lethargy.

√ Cognitive impairment.

√ Depression, Anxiety, Sleep disturbance, Headaches, Dizziness are common.

◙ Diagnosis:

√ It is **clinical** and by excluding other causes of chronic pain and fatigue.

√ Fibromyalgia laboratory results are **normal**: eg, renal and liver function tests, FBC, TSH, Rheumatoid factor… etc.

◙ Management:

The management of fibromyalgia is often difficult and needs to be tailored to the individual patient. The patient should be reassured and educated that there is no cure for the condition.

A psychosocial and multidisciplinary approach is helpful.

√ Reassurance, Education and Explanation.

√ Aerobic exercise: has the strongest evidence base.

√ Cognitive behavioural therapy (CBT).

√ Medications for pain and anxiety: eg, tramadol, paracetamol, pregabalin, duloxetine, amitriptyline.

◙ Important Note:

The manifestations of **fibromyalgia** are somewhat similar to that of chronic fatigue syndrome (also known as myalgic encephalomyelitis). In the exam:

√ If the patient has more pain and tenderness, pick → **Fibromyalgia**.

√ If they have a history of fatigue after a recent viral or bacterial infection,

Pick → **Myalgic encephalomyelitis**.

◙ Scenario:

A 45-year-old woman has been having low moods and widespread muscle pain since her husband died 10 years ago. She has been feeling extremely fatigued over the past 3 months. She has difficulty sleeping and concentrating.

	Resting does not improve her fatigue. In the morning she has vague back pain. On examination, there is tenderness over multiple specific points such as upper and lower arms, legs, shoulder girdle, hips, back, and neck. Her blood results are all normal. They include kidney and liver function tests, FBC, TSH, Electrolytes, CK, Rheumatoid factor, ANA, Anti-CCP. What is the most likely diagnosis? → **Fibromyalgia**. √ Chronic pain: at multiple sites, sometimes (pain all over) for > 3 months. √ Fatigue and lethargy. √ Cognitive impairment. √ Depression, Anxiety, Sleep disturbance, Headaches, Dizziness are common. + **All blood results are NORMAL.**
Key 32	**Remember:** • **Ankylosing spondylitis** = Progressive lower back pain + stiffness (worse in the morning and improves with activity). ± Others (sacroiliac tenderness, pain in hips and shoulders). • Ankylosing Spondylitis has a strong association with **HLA-B27 gene**. √
Key 33	**Scenario: Test Your Knowledge on a Previous Topic** A 68-year-old gentleman visits his GP with a three-month history of overall discomfort and pain in his shoulder, neck and hips. He mentions that he feels particularly stiff in the mornings, with the stiffness lasting over an hour but

improving slightly with activity as the day progresses. Upon examination, there is no evident joint inflammation. Blood tests reveal an erythrocyte sedimentation rate (ESR) of 85 mm/hr (normal <15). Which of the following is the most probable diagnosis?

A) Fibromyalgia.

B) Systemic lupus erythematosus.

C) Rheumatoid arthritis.

D) Polymyalgia rheumatica.

E) Giant cell arteritis.

Answer:

The most likely diagnosis in this scenario is → D) Polymyalgia rheumatica.

Explanation:

Polymyalgia rheumatica (PMR)

√ Polymyalgia rheumatica (PMR) is an inflammatory condition predominantly seen in individuals over the age of 50. It is characterised by pain and stiffness in the shoulders, neck, and hips, which is often worse in the morning and improves with activity.

√ The elevated ESR (85 mm/hr in this case) is a common finding in PMR, indicating inflammation.

	√ The absence of joint swelling helps differentiate PMR from conditions like rheumatoid arthritis. √ The patient's age, symptoms, and laboratory findings all point towards PMR as the most probable diagnosis. √ **Corticosteroids**: Low doses of corticosteroids, such as prednisone, are the mainstay of treatment and typically result in rapid improvement of symptoms. **Here is why the other options are less likely:** A) **Fibromyalgia**: Typically presents with widespread musculoskeletal pain but does not usually involve elevated ESR levels. B) **Systemic lupus erythematosus**: This autoimmune disease can present with a wide range of symptoms including joint pain, but it often involves additional symptoms such as a rash, renal involvement, and other systemic signs. C) **Rheumatoid arthritis**: Usually presents with joint pain and swelling, which is not observed in this patient. E) **Giant cell arteritis**: Often presents with symptoms like headache, scalp tenderness, jaw claudication, and visual disturbances. While it can be associated with PMR, the absence of these specific symptoms makes PMR the more likely diagnosis.
Key 34	**A Key Study Scenario** A 55-year-old woman presents to her GP with sudden onset of pain, swelling, and redness in the right distal interphalangeal (DIP) joint. The symptoms began

abruptly three days ago and have progressively worsened, with the pain described as severe and throbbing. She also notes warmth around the joint. She has experienced similar episodes in the past that resolved after a few days. There is no history of trauma, and on examination, the joint is visibly swollen, erythematous, and tender to touch. The patient is afebrile.

Q) What is the most likely diagnosis?

Diagnosis → Gout.

Why it is gout and not osteoarthritis?

The **acute onset** of **severe pain**, **redness**, and **swelling**, particularly in a single joint, along with the history of **recurrent episodes**, strongly points towards **gout**. Osteoarthritis typically presents with more chronic, gradual joint pain and stiffness, without the intense inflammation and abrupt onset seen in gout.

Q) What is the most appropriate investigation?

Investigation → Synovial aspiration.

Explanation: Synovial fluid aspiration is the most appropriate investigation to confirm the diagnosis of gout. It allows for the analysis of the fluid, where the presence of monosodium urate crystals confirms gout. Additionally, it helps to exclude septic arthritis by ruling out infection in the joint fluid.

Management of Gout in This Scenario:

1. **Acute Attack**:
   - First-line Rx: **NSAIDs** (e.g., ibuprofen) to reduce inflammation and pain.
   - If NSAIDs are contraindicated: **Colchicine** can be used.
   - For severe cases or if NSAIDs/colchicine are not effective: **Corticosteroids** (oral or intra-articular) can be considered.
2. **Lifestyle Modifications**:
   - Advise reducing intake of purine-rich foods (e.g., red meat, seafood).
   - Encourage **weight loss** if overweight.
   - Limit **alcohol** consumption.
3. **Long-term Prevention** (if recurrent attacks or chronic gout):
   - Initiate **urate-lowering therapy** (e.g., **allopurinol**) to prevent future attacks, but only after the acute attack has resolved "along with NSAIDs and Colchicine coverage"